RTCA DIGEST

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Spring Forum and Annual Awards Luncheon

Implementing Required Navigation Performance - The Plan, Challenges, and Benefits

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RTCA's annual Spring Forum and Awards Luncheon was held June 20th at the Ronald Reagan Building and International Trade Center. A well-placed and knowledgeable cross section of the aviation community illuminated for attendees many of the issues, perspectives, and options regarding Required Navigation Performance (RNP).

Keynote Speaker Peggy Gilligan, FAA Deputy Associate Administrator for Regulation and Certification, noted that industry has identified full-scale implementation of RNP and Area Navigation (RNAV) procedures as a top priority. Ms. Gilligan emphasized the FAA's commitment to the successful and timely implementation of these procedures. RNP/RNAV is a vehicle that can facilitate reduced separation standards, increase availability of user-preferred routings and enhance safety through development of "precision-like" approaches.

Other FAA and industry speakers highlighted important themes:

- Fewer approach types could optimize flight decks and lower training costs
- Education and testing for flight and simulator instructors is a critical component of the transition to RNP
- RNP has significant implications for the FAA's Operational Evolution Plan (OEP). Six OEP initiatives that may require aircraft equipage involve RNP/RNAV
- Significant benefits will accrue from navigation capabilities that provide predictable and repeatable ground tracks
- FAA, operators and manufacturers should collaboratively develop RNP guidance

John O'Brien, Chairman, RTCA, presented FAA Administrator Jane Garvey with the Achievement Award at RTCA's Awards Luncheon

In concluding the Spring Forum program, RTCA Chairman John O'Brien noted that "implementation of RNP is dependent upon continuing the government/industry partnership that Administrator Garvey has fostered over the past five years. RNP, and the other programs that make up CNS/ATM modernization, can not take place without commitment of talent and resources from both government and industry."

Administrator Jane Garvey received the Achievement Award, RTCA's highest honor, during the annual awards luncheon following the Spring Forum. Selected RTCA volunteers were also recognized for their contributions with presentation of RTCA Citations and Certificates of Appreciation. For the full list see page 7.

The Annual Meeting of Members followed the awards luncheon. RTCA Policy Board members were elected for the 2002-2003 term. Mr. Robert Blouin, National Business Aviation Association, was elected Chairman.

Program Management Committee

The Program Management Committee (PMC) approved three new documents at its meeting on June 25, 2002. The new publications are listed on page 10 of the *Digest.*

Additional issues discussed:

- The PMC noted the approval of Change 1 to DO-181C on May 17, 2002. Change 1 provides the addition of Hijack Mode Operations. This completes SC-187's special tasking. The committee was retired.

- The PMC reviewed a Cospas-Sarsat Secretariat letter regarding recent developments for 406 MHz beacons and a Cospas-Sarsat Council agreement that a specific effort should be undertaken to encourage the development of lower-cost 406 MHz beacons. RTCA will follow developments.

- EUROCAE announced their intentions to "restart" EUROCAE WG-13, Navigation Performance, jointly with SC-181 to update DO-236A. Items identified for update include altitude temperature correction, RNP<0.3nm and early turns.

- EUROCAE has proposed a new Working Group on Aircraft Altimetry. RTCA will coordinate with EUROCAE on this activity. No new committee was formed.

- EUROCAE has also proposed a new Working Group or Task Force to update documents used to support the implementation of ACARS based data-link services. Additional tasks using ACARS that go beyond its initial design were noted. RTCA will coordinate with EUROCAE and await recommendations from the AEEC users forum before considering a new committee.

The next PMC meeting will be on August 27, 2002.

Chairman: Bill Jeffers, ARINC

Secretary: Harold Moses, RTCA, Inc.

Future Air Ground Communications for the VHF Aeronautical Band (118-137 MHz) (SC-172)

Special Committee 172 has convened two recent plenary sessions at RTCA:

- May 28-30
- July 9-11

At the May meeting, work on two draft documents was concluded so that the final review and comment (FRAC) process could be initiated:

- DO-224A, Change 2, *Signal-in-Space MASPS for Advanced VHF Digital Data Communication Including Compatibility with Digital Voice Techniques*
- DO-271A, *MOPS for Aircraft VDL Mode 3*

In July, SC-172 resolved comments from the FRAC process and approved DO-224A, Change 2, and DO-271A for submission to the Program Management Committee. DO-224A, Change 2, has been updated with current requirements. This change also provides source requirements for DO-271A.

The committee's VDL Mode 2 MOPS was approved by the PMC on June 25th as DO-281. This MOPS document features both integrated and segregated architectures to facilitate implementation of the FAA TSO authorization processes and subsequent equipment approvals.

The next SC-172 Plenary meeting is scheduled November 5-6, 2002, at the FAA's William J. Hughes Technical Center in Atlantic City, New Jersey.

Chairman: Bill Stine, National Business Aviation Association

Program Director: Rudy Ruana, RTCA

The Future Is Now

The aviation community has a vision for the future. Simply stated, it's to meet the public's expectations for safe, secure, affordable and reliable air transportation.

This vision, coupled with the challenges of the day, provided the basis for the 1995 Free Flight initiative and recommendations. The Free Flight report noted that aviation is a complex enterprise, one that requires government / industry consensus, collaboration and commitment to change. Furthermore, the enterprise needs to evolve and to accommodate changes in traffic density and mix as they occur. Equally important, any changes must provide measurable operational benefits.

The Free Flight recommendations focused on the near-, mid- and far-term with the far- term really centered on the future and the implementation of new concepts. Generally speaking, the new concepts call for the collection and processing of accurate information regarding National Airspace System (NAS) and aircraft status' followed by the real time dissemination via data link and real time display, as appropriate, to pilots, controllers and dispatchers. When implemented, these concepts will result in reduced separation standards and increased aviation system safety, capacity and efficiency.

The community's made great progress in achieving near term objectives. The Free Flight Steering Committee is operational and facilitating change. A NAS Concept of Operations has been in place since December 2000 and is being updated. A NAS architecture exists and the FAA has published an Operational Evolution Plan (OEP) that addresses how the NAS will evolve over the next 10 years. The updated Concept of Operations will provide part of the foundation upon which the next version of the OEP will be based.

When the Steering Committee was formed, it agreed that infrastructure and aircraft changes are needed, but that initial efforts should focus on infrastructure changes. Aircraft changes could wait until the future. FAA implemented the Free Flight Phase One program and Administrator Garvey noted last month in her Congressional testimony that Free Flight Phase One products are already yielding major operational benefits.

Last summer the Steering Committee agreed that is was time to start addressing avionics upgrades. The future was about to arrive.

The downturn in the economy, then the terrorist attacks and their aftermath, combined to create major financial problems for both government and industry.

Working under the aegis of the Steering Committee, RTCA is developing recommendations for implementing avionics upgrades that are needed to support the current and emerging operational concepts. Results will be presented to the Steering Committee on August 21st. Avionics upgrades will be expensive … both in time and dollars. Furthermore, they will require additional government / industry consensus and collaboration with respect to operational benefits, specific performance requirements and certification criteria. At present it appears that the avionics upgrades will likely be delayed by financial limitations.

While achieving enhanced operational capabilities will not occur as soon as most would like,THE FUTURE really IS NOW! The community, working collaboratively, must make decisions and plans NOW … to upgrade avionics … and to continue improving the infrastructure; otherwise we will not be prepared to continue pursuing the vision when funding is again available.

Standards of Navigation (Joint RTCA SC-181/EUROCAE WG-13)

The committee met May 14-17, 2002 at the facilities of Eurocontrol, Brussels, Belgium. The Terms of Reference were reviewed to update EUROCAE WG-13 on the current work program and tasks. WG-13 is reactivating their participation to this joint committee.

Working Group 1 reported on the Required Navigation Performance (RNP) MOPS and MASPS activities.

RNP MOPS criteria and performance allocations are being revisited to consider changes that would allow flexibility in implementation and installations. This work will be coordinated through a series of WG reviews and telecons.

RNP MASPS refinements are focusing on recommendations that address cold temperature compensation during the final approach segment. Additionally, a new appendix will be added to describe concerns and issues with temperature compensation in a broad range of areas plus other topics including aircraft/systems, airspace/procedures, implementation and operations.

Working Group 4 reviewed upcoming activities that include the addition of criteria revising DO-257 to provide guidance on the development of situational awareness displays for surface management and vertical situation. The resulting recommendations are needed for future small aircraft installations and architectures. Additional manufacturer participation is welcome.

Next meeting: September 16-20, 2002.

Co-Chiars:
Dave Nakamura,
The Boeing Company
Roland Rawlings, Eurocontrol

Program Director:
Harold Moses, RTCA, Inc.

Automatic Dependant Surveillance-Broadcast (ADS-B) (SC-186)

The committee met on June 19-20, 2002 and approved the Universal Access Transceiver (UAT) MOPS. No non-concur comments were received. The document will be presented for approval to the RTCA PMC at the August 2002 meeting.

Working Group 1, Operations & Implementation, continues to develop application descriptions, and is working with WG-4 to complete the application appendices of the Airborne Separation Assurance (ASA) MASPS. Work has started on a description of an Emergency Locator Transmitter (ELT) application.

Working Group 2, Traffic Information Service- Broadcast (TIS-B), reported that the final review and comment process for the TIS-B MASPS revealed the need for a more comprehensive coverage of ground and air requirements. SC-186 agreed to address these issues. This will result in an estimated 3 to 4 month revision process before the document can be resubmitted.

Working Group 3, 1090 MHz MOPS, continues update work on DO-260 and is expected to have a MOPS for approval at the January plenary.

Working Group 4, Application Technical Requirements, expects two application appendices and Chapter 1 of the ASA MASPS to be ready for review at the next plenary. Appendix material has been reviewed as planned on Airborne Surveillance and Separation Assurance (ASSA), Approach Spacing for Instrument Approaches (ASIA), Enhanced Visual Acquisition (EV Aq) and Enhanced Visual Approaches (EV appr).

Working Group 5, UAT MOPS, resolved all comments received and presented the MOPS for Plenary approval.

Working Group 6, ADS-B MASPS, completed final edits and delivered the revised DO-242 for PMC approval.

The next SC-186 meeting is scheduled for September 23-24, 2002 at Eurocontrol, Brussels, Belgium.

Co-Chairs:
Paul Fontaine, FAA
Rocky Stone, United Airlines, Inc.
Program Director
Harold Moses, RTCA, Inc.

Flight Information Services Communication (FISC) (SC-195)

SC-195 met at the National Center for Atmospheric Research in Boulder, Colorado on May 29 and 30.

The committee discussed their future work plan and agreed that additional material needs to be added to DO-267, Change 1, *Flight Information Services- Broadcast (FIS-B) MASPS*. Completion is now expected in early 2003.

The committee discussed a proposal to transfer ownership of the FIS Product Registry to the FAA Technical Center (ACT-350). Under this proposal SC-195 would develop guidelines for including products in the registry along with a template for requesting products and the FAA Tech Center would administer the registry. There may be a need for an industry consensus group to develop open product specifications and update guidance for the product registry.

With the completion of DO-267 Change 1 and transfer of the FIS Product Registry, SC-195 will have completed work on its scheduled deliverables.

The committee discussed an issue paper on inappropriate use of color in the cockpit submitted by the FAA. The committee agreed to review a number of display presentations at the July plenary with the objective of developing guidance on the use red and amber/yellow that will be included in the Change 1 document.

The committee agreed to include product specifications in Appendix E of Change 1 for Aerodrome and Airspace products that will be used in Safe Flight 21. An ad hoc group was asked to evaluate the body of the Change 1 document for edits that may be needed to support the Aerodrome and Airspace products.

Representatives from the FAA, Johns Hopkins University and NASA presented the Troposopheric Airborne Meteorological Data Reporting (TAMDAR) project including the operational concept, communication architecture and sensor development. It remains to be determined if the data element formats contained in the DO-252, AUTOMET Minimum Interoperability Standard, will meet the needs of future AUTOMET sensors and applications. Flight test trials beginning next year should provide the answer in the 2004 time frame.

Chairman:
Steve Henely, Rockwell Collins
Program Director,
Rudy Ruana, RTCA, Inc.

Next Generation Communications (NEXCOM) (SC-198)

The NEXCOM committee met at RTCA for the 11th meeting on July 9-11, 2002. Each of the working groups is currently on schedule.

Dr. Randy Sollenberger of the WJHTC Human Factors group made a special presentation *,Very High Frequency Digital Link Mode 3 (VDL3) Latency Study Briefing for RTCA,* to a combined SC-172 and SC-198 audience. The study was performed to demonstrate the effect of various levels of delay in transmission of information. The results of the study indicated that a latency of up to 350 milliseconds in the transmission does not have any adverse affect on the controller's ability to perform their work.

Working Group 4, Transistion, has formed a short term Tiger Team to develop its document outline and address changes in the strategy as identified by FAA. The FAA airspace representative (FAA-ATA) has volunteered to provide a briefing on the Strategy and Planning for Airspace at the next plenary meeting. Individuals have volunteered to flesh out each section of the NEXCOM Transition document. The product remains on schedule.

Working Group 5, Safety and Performance Requirements (SPR), has reviewed several draft versions of the document and will be presenting the final draft to the plenary at the next meeting. Final approval is planned for the October 2002 meeting.

Working Group 6 , Interoperability, continues to progress on schedule. Additional operational representatives (pilots) are still needed.

The next meeting is scheduled August 27-29, at RTCA.

Co-Chairmen:
Karl Grundmann, NASA
Abe Jaafar, Delta Airlines
Program Director:
Rudy Ruana, RTCA

Airport Security Access Control Systems (SC-199)

The seventh and eighth meetings of SC-199 were held on June 11th and July 12th, respectively.

The committee briefly reviewed the status of airport security activities and the status of the new Transportation Security Administration (TSA). Several TSA representatives are attending the SC-199 meetings and participating in the review of the document. The committee devoted significant time to a review of the revised system performance requirements, DO-230 Section 2. A review of the revised subsystem functional and performance requirements Section 3, was also completed.

The Smart Card Working Group reviewed key issues including the need for a contact-less card and the relationship of the WG proposals to the Transportation Worker Identification Card (TWIC) proposals. A simple goal would include a biometric template on a smart card. The pros and cons inherent to holding a large amount of data on a smart card were reviewed.

The Biometrics Working Group presented a draft of the Appendix for review and comment. It was noted that current regulations do not require biometrics but it is implicit that biometrics receive a thorough review and evaluation so that benefits can be identified and incorporated in future requirements.

The Data Base Working Group reported on network and related issues. The group emphasized that the database section must provide minimum recommendations and avoid "mission creep."

The committee expects to consider for approval a final draft of the revised DO-230 at the next meeting.

Next meeting: August 22, 2002

Chair:
Christer Wilkinson, DMJMH+N
Program Director:
Harold Moses, RTCA, Inc.

RTCA Welcomes New Members

Johnson Controls Inc. provides electronic access control, ID badging, closed circuit video and related security systems to airports. Offerings also include fire safety, lighting, and HVAC controls. Representative: Mr. William McGinty

Booz Allen & Hamilton international aviation team provides program management support to the FAA in navigation systems. Booz Allen's aviation service offerings include: Human Factors and Safety, Aviation Security, Operational Research and Analysis, Aerospace Systems Engineering, Organizational Analysis and Acquisition Management. Representative: Mr. Ron Davis

Civil Aviation University of China has contributed to achievements in flight safety, aircraft and engine failure diagnosis, CNS/ATM, economic benefits evaluations for civil aviation enterprises and air transport management. Representative: Mr. Wu Tonghsui

Frank Carreras Consulting is a system engineering consulting company. Representative: Mr. Frank Carreras

Free Flight Systems produces a GPS product line and has been selected as the GPS sensor provider on the FAA sponsored, Capstone Project. Representative: Mr. Calvin Knight

TKM, Inc. is a manufacturer of navigation and communication equipment for light aircraft. Representative: Mr. Eric Morrow

Center for Aviation and Space Technology is an international associate engaged in applied research and technical service. Ongoing projects include avionics, aircraft structure design, and supplementary power systems. Representative: Mr. Elmer Hsu

Inseat Solutions, LLC provides inseat massage and heat units. Representative: Mr. Gregg Minnehan

ALTA specializes in the field of air navigation systems development, consulting and training. Representative: Mr. Oleg Dzhalilov

Infolution provides instrument approach procedure design software. Representative: Mr. Marc Maillet

Aviation Center Cologne modifies new and used aircraft with components from world wide approved manufacturers. Representative: Mr. Harald Zimmermann

Brazil Civil Aviation Authorities is an international government associate. Representative: Mr. Silvio Potbngy

Green Hills Software provides safety critical advanced embedded processors, state-of-the-art software development tools and modern run-time systems that are used extensively for aviation. Representative: Mr. Mike Wolf

More New Members on page 10

2002 Spring Forum Sponsors and Award Recipients

RTCA acknowledeges the generous support for Spring Forum 2002 provided by the following organizations:

Continental Breakfast Co-Sponsors:

CMC Electronics, Inc.
Jeppesen-Sanderson, Inc.

Coffee Sponsor:
Smiths Aerospace

The following RTCA Committee volunteers were recognized for their leadership and outstanding contributions in producing RTCA publications during the past year.

RTCA CITATIONS

James Cash	National Transportation Safety Board
John Coleman	Hamilton Sundstrand
Michael DeJonge	Smiths Aerospace
David Downey	Federal Aviation Administration
Lorry Faber	Federal Aviation Administration
Robert Fuschino	United Airlines
Steve Green	NASA
Karl Grundmann	NASA
Keith Hanneman	Honeywell International
Abe Jaafar	Delta Air Lines
Kamiar Karimi	The Boeing Company
Jim Krodel	United Technologies Research Center
Chuck LaBerge	Honeywell International
Dean Lamiano	MITRE
R. Andrew Pickens	AvCom, Inc.
Rob Renoud	ARINC
Robert Saffell	Rockwell Collins
John Studenny	CMC Electronics
Roger Southgate	Rockwell Collins
Jim Terpstra	Jeppesen-Sanderson
Joel Wichgers	Rockwell Collins, Inc.
Jim Winkel	Litton Industries, Inc.
Ronald Wojnar	Federal Aviation Administration
Thomas Zalesak	U. S. Navy

RTCA CERTIFICATES OF APPRECIATION

Clayton Barber	GARMIN
Scott Jerdan	Federal Aviation Administration
Leanna Rierson	Federal Aviation Administration
Steve Young	NASA

RTCA DO-178B Training

Software Considerations in Airborne Systems and Equipment Certification,

Program Includes DO-178B, DO-248B & DO-278

Two levels of training include:

- **Managers Course:** A one-day course that provides a sound understanding of why and how aviation-related software must be certified, system certification considerations, the content and application of DO-178B and related guidance.
- **Practitioners Course:** A three-day course that includes some elements of the Managers program but focuses on the details of DO-178B concepts, rational and applications.

Courses are tailored to the expected experience of the students. Certification Services, Inc. provides the training at RTCA, 1828L St. NW, Suite 805, Washington DC, 20036.

Managers Course:

October 22

Practitioners Course:

October 23-25

Class hours are 9:00 AM to 5:00 PM with an hour for lunch.

Register for training online at www.rtca.org or use this form. Contact Rudy Ruana for additional information email: rruana@rtca.org , phone: (202) 833-9339, fax:: (202) 833-9434.

REGISTRATION FORM and FEE SCHEDULE (Per Person)

Name	Mr. / Ms.	
Company/Affiliation		
Title		
E-mail ddress		
Telephone/FAX Nos.		
Mailing Address		
Credit Card # Company and Expiration Date		
Training Course	**Registration**	**RTCA Member Registration**
Managers Course	$795	$695
Practitioners Course	$1,495	$1,295

Calendar of Events

August

1 SC-200, EUROCAE WG-60
5-7 SC-194 and WGs
8 SC-199 PLenary
12-16 SC-159
12 SC-159/WG-2C
12 SC-159/WG-6
13 SC-159/WG-4
13 SC-159/WG-6
13 SC-159/Ad Hoc
14 SC-159/WG-1
14 SC-159/WG-4
14 SC-159/WG-6
15 SC-159/WG-2
15 SC-159/WG-4
15 SC-159/WG-5
16 SC-159 Plenary
20 SC-186/WG-3
21 SC-186/WG-3
21 SC-199 Editors
21 Free Flight Steering Committee
22 SC-186/WG-3
22 SC-199 Plenary
23 SC-199 Editors
27-29 SC-186/WG-4
27-29 SC-198/WGs

September

16-20 SC-181
17-18 SC-135 PLenary
17-19 SC-186/WG-4
23-27 SC-186 (Joint w/ EUROCAE) @ Eurocontrol Brussels, Belgium
23-24 SC-186 Plenary (Joint w/ EUROCAE)
25 SC-186/WG-2
25-27 SC-186/WG-1 &WG-4
27 SC-186/WG-1

Unless otherwise specified, all meetings will be held at RTCA, Inc., 1828 L Street NW, Suite 805, Washington, DC 20036 USA. Phone: (202) 833-9339. Fax: (202) 833-9434. The information in this calendar is deemed to be reliable as of the date of publication, but is not guaranteed and is subject to change. Please contact RTCA for updates. All RTCA Federal Advisory Committee meetings are open to the public and are free of charge. Visit our Web site at www.rtca.org for current schedules of SC meetings, WG meetings and other upcoming events. If you have any problems or questions, contact RTCA (info@rtca.org).

ACRONYMS

ACARS	Aircraft Communications Addressing and Reporting System
ASSA	Airborne Surveillance & Separation Assurance
CNS/ATM	Communications, Navigation, Surveillance / Air Traffic Management
ELT	Emergency Locator Transmitter
EUROCAE	European Organization for Civil Aviation Equipment
EV appr	Enhanced Visual Approach
EV Aq	Enhanced Visual Acquisition
FRAC	Final Review and Comment
MASPS	Minimum Aviation System Performance Standard
MHz	Megahertz
MOPS	Minimum Operational Performance Standard
NAS	National Airspace System
OEP	Operational Evolution Plan
PMC	Program Management Committee
RNAV	Area Navigation
RNP	Required Navigation Performance
SPR	Safety and Performance Requirements
TAMDAR	Troposopheric Airborne Meteorological Data Reporting
TSA	Transportation Security Administration
TSO	Technical Standard Order
TWIC	Transportation Worker Identification Card
UAT	Universal Access Transceiver
VDL	VHF Digital Link
VHF	Very High Frequency

RTCA Digest is published six times per year by RTCA, Inc., a private, not-for-profit organization that brings industry and government together to address the needs of the worldwide aeronautical community. For inquiries, comments, or document orders, please call (202) 833-9339 or fax (202) 833-9434.

NEW DOCUMENTS AVAILABLE

DO-280, Minimum Interoperability Requirements Standard for ATN Baseline 1 (INTEROP ATN B1)
Issued 6-25-02 Prepared by SC-189

This document defines interoperability requirements for the communication services and the Air Traffic Services (ATS) applications and allocates the requirements to the stakeholders. The document has three primary purposes - first, it supports the development of an end-to-end ATN-based ATS data communication system by documenting and allocating the requirements for interoperability; second, the document provides a means for verification of interoperability after changes to the end-to-end system; third, the document provides a set of recommendations for clarifying operational and other interoperability issues outside the scope of expertise of SC-189.

DO-281, Minimum Operational Performance Standards for Aircraft VDL Mode 2 Physical, Link and Network Layers
Issued 6-25-02 Prepared by SC-172

This document presents theMinimum Operational Performance Standards (MOPS) and test procedures for Aircraft Very High Frequency (VHF) Digital Link (VDL) Mode 2 physical, link and network layer protocol components of an avionics transmitter/receiver (transceiver). These transceivers are intended for air-ground (A-G) data communications. Equipment certified to standards in this MOPS will be compatible with the relevant Minimum Aviation System Performance Standards(MASPS) in RTCA/DO-224A and with the International Civil Aviation Organization (ICAO) VDL Mode 2 Technical Manual. Compliance with this MOPS is one means of assuring that VDL Mode 2 equipment will function satisfactorily under all conditions normally encountered in the air traffic control A/G operations and that data formats will be compatible with the Aeronautical Telecommunication Network (ATN)

DO 242A, Minimum Aviation System Performance Standards for Automatic Dependent Surveillance Broadcast (ADS-B),
Issued 6-25-02 Prepared by SC-186

This document supersedes DO-242 and provides an up-to-date view of the system-wide operational use of ADS-B. This revised ADS-B MASPS concentrates on four major areas of development: 1) Separating the accuracy and integrity components of the Navigation Uncertainty Category (NUC) into the new fields Navigation Accuracy Category (NAC) and Navigation Integrity Category (NIC); 2) Reorganization of the State Vector, Mode-Status, and On-condition reports; 3) Restructuring the content and manner in which intent information is broadcast; and 4) Clarification that system requirements at the MASPS level are based on operational ranges and not particular applications.

Document Ordering Information
Place your order: To order an RTCA document, please contact Patrice Dickens at RTCA. Phone: (202) 833-9339; fax: (202)833-9434; e-mail: pdickens@rtca.org.

New Members continued from page 4

Syair Designs LLC is a technical organization that manufactures red, green, blue lighting emitting diodes lighting for corporate and commercial aircraft. Representative: Mr. Eric Beverage

Avista Incorporated provide software engineering to many major avionics hardware suppliers. Representative: Ms. Lynne Jantzen

TecSec, Inc. provides information security and information management through cryptography. Representative: Mr. Jay Wack

RTCA welcomes our newest members and their designated RTCA representatives. We look forward to their participation in RTCA activities. If you would like membership information for your organization, please contact RTCA. Phone: (202) 833-9339; Fax: (202) 833-9434; E-mail: info@rtca.org.